

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Appl. No.: 10/817,169 Confirmation No.: 2727
Applicant(s): Bienvenu *et al.*
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Art Unit: 2863
Examiner: Washburn, Douglas N.
Title: PAVING-RELATED MEASURING DEVICE INCORPORATING A
COMPUTER DEVICE AND COMMUNICATION ELEMENT
THEREBETWEEN AND ASSOCIATED METHOD

Docket No.: 031850/272210
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P.O. Box 1450
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REVISED APPEAL BRIEF UNDER 37 CFR § 41.37

This Appeal Brief is filed pursuant to the “Notice of Appeal to the Board of Patent Appeals and Interferences” filed June 9, 2006, as further revised in response to the Notification of Non-Compliant Appeal Brief mailed on August 16, 2006.

1. ***Real Party in Interest.***

The real party in interest in this appeal is Troxler Electronic Laboratories, Inc., the assignee of the above-referenced patent application.

2. ***Related Appeals and Interferences.***

There are no related appeals and/or interferences involving this application or its subject matter.

3. ***Status of Claims.***

Claims 1-42 are pending in the application. Claims 1-7, 9, 14, 15, 17-23, 25, 28, 29, 31-38, 40 and 42 stand rejected as unpatentable over one or more prior art references as set forth in greater detail below. Claims 8, 10-13, 16, 24, 26, 27, 30, 39 and 41 stand objected to. The prior art rejection of Claims 1-7, 9, 14, 15, 17-23, 25, 28, 29, 31-38, 40 and 42 is appealed herein.

4. ***Status of Amendments.***

All claim amendments presented during prosecution were entered and are set forth in the clean copy of the pending appealed claims appended to the brief. Claims 1, 18 and 32 have been amended once during prosecution.

5. ***Summary of Claimed Subject Matter.***

The present invention provides a system and method for determining a property of a paving-related material and a system for selectively and directly measuring a property of a paving-related material. Independent Claim 1 recites a system adapted to determine a property of a paving-related material, wherein such a system comprises a measuring device for selectively and directly measuring the property of the paving-related material, as discussed, for example, at page 3, lines 5-10, and as shown, for example, in Figure 1. A computer device is capable of executing a software program product and communicating with the measuring device, wherein **the computer device is configured to direct the measuring device to directly measure the property of the paving-related material according to a parameter determined by the software program product**, and to receive data comprising the measured property of the paving-related material from the measuring device, as discussed, for example, at page 3, lines 5-10. A communication element is operably engaged between the measuring device and the computer device so as to allow communication therebetween such that **the measuring device directly measures the property of the paving-related material in response to the direction of the computer device received via the communication element**, as discussed, for example, at pages 6-7, lines 28-31 and 1-15, respectively, and as shown, for example, in Figures 2-5. The communication element is configured to allow the computer device to be spaced apart from the measuring device, thereby allowing the computer device to be prepared, to include the parameter, and to manipulate the data, in spaced-apart relation with respect to the measuring device, as discussed, for example, at page 3, lines 10-15.

Independent Claim 18 recites a method of determining a property of a paving-related material, wherein such a method comprises **preparing a computer device to execute a software program product for directing a measuring device to directly measure the property of the paving-related material, according to a parameter determined by the**

software program product, and to receive data comprising the measured property of the paving-related material from the measuring device, as discussed, for example, at page 3, lines 5-11. After executing the software program product, **the executed software program product is communicated from the computer device to the measuring device via a communication element operably engaged therebetween such that the measuring device directly measures the property of the paving-related material in response thereto**, as discussed, for example, at pages 3 and 6-7, lines 11-14, 28-31 and 1-15, respectively. The communication element is configured to allow the computer device to be spaced apart from the measuring device such that the computer device can be prepared, in spaced-apart relation with respect to the measuring device, to include the parameter and to manipulate the data, as discussed, for example, at page 3, lines 14-17.

Independent Claim 32 recites a system adapted to cooperate with a measuring device to selectively and directly measure a property of a paving-related material, wherein such a system comprises a computer device capable of executing a software program product and communicating with the measuring device, as discussed, for example, at page 4, lines 1-5. **The computer device is configured to direct the measuring device to directly measure the property of the paving-related material according to a parameter determined by the software program product**, and to receive data comprising the measured property of the paving-related material from the measuring device, as discussed, for example, at page 4, lines 1-5. A communication element is operably engaged between the measuring device and the computer device so as to allow communication therebetween, such that **the measuring device directly measures the property of the paving-related material in response to the direction of the computer device via the communication element**, as discussed, for example, at pages 4 and 6-7, lines 1-5, 28-31 and 1-15, respectively. The communication element is configured to allow the computer device to be spaced apart from the measuring device, thereby allowing the computer device to be prepared, to include the parameter and to manipulate the data, in spaced-apart relation with respect to the measuring device, as discussed, for example, at page 4, lines 1-5.

6. ***Grounds of Rejection to be Reviewed on Appeal.***

Claims 1, 2, 9, 14, 15, 17-19, 25, 28, 29, 31-33, 40, and 42 were rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 5,952,561 to Jaselskis *et al.*

Claims 3-7, 20-23, and 34-38 were rejected under 35 U.S.C. §103(a) as being unpatentable over the Jaselskis '561 patent in view of U.S. Patent No. 5,132,871 to Densham *et al.*

7. ***Argument.***

The Jaselskis '561 and Densham '871 patents, either separately or in combination, **do not** teach, suggest, or provide motivation for the embodiments of the present invention, as claimed in Claims 1, 18 and 32.

Claim Rejections – 35 U.S.C. §102

As stated in MPEP §2131, "to anticipate a claim, the reference must teach every element of the claim." That is, "[a] claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference."

Verdegaal Bros. v. Union Oil Co. of California, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987).

The Jaselskis '561 patent is directed to a real time differential asphalt pavement quality sensor for measuring asphalt density in real time using a differential approach. Two sensors, one in the front of a roller and another behind the roller, measure reflected signals from the asphalt. The difference between the reflected signals provides an indication of the optimal compaction and density of the asphalt pavement. The change in variance over successive passes determines when the optimal level of compaction has been reached. FIG. 3 of the Jaselskis '561 patent shows an apparatus for field testing on test strips of asphalt pavement. The electronic equipment used for the testing consisted of a Hewlett Packard (HP) 8350B sweep oscillator, an HP 8410A network analyzer, an HP 8411A harmonic frequency converter, an Apex personal computer, a motor-driven linear positioner, a Narda Model 640 standard gain horn antenna, and other components such as isolators, directional couplers, waveguides, and cables. As shown in FIG. 3, an antenna 40 and linear scanner 41 were mounted on a motor-driven positioner 42 driven by a

stepper motor 44 to obtain measurements at multiple locations along a particular strip of asphalt 46. **A measurement set began with the sweep oscillator generating signals from 8 GHz to 12 GHz in increments of 0.4 GHz. The values for the reflected signals at these frequencies were stored in a data set on the hard drive of computer 48.** The positioner 42 then moved the antenna 40 forward by 2 cm and the next data set was obtained. The procedure was repeated until 40 data sets were taken. A variety of measurement sets was taken using three different antenna positions (10 cm, 12.5 cm, and 15 cm above the asphalt surface) and two separate angles of incidence (0° and 10°). Various other sensor configurations are disclosed by the Jaselskis '561 patent, wherein **a common aspect of such configurations is the collection and processing of the collected data with a computer (i.e., a data logger/analyzer).**

In contrast, each of Claims 1, 18, and 32 particularly requires that a computer device be capable of communicating with a measuring device configured to directly measure the property of the paving-related material, in order to **direct the measuring device to measure the property of the paving-related material according to a parameter determined by the computer device.** That is, **the computer device is configured to execute a software program and then direct the measuring device to perform the measurement according to a parameter determined by the executed software.** The computer device then receives the measurement data from the measuring device for processing. Further, a communication element is disposed between the measuring device and the computer device to allow the computer device to provide the measurement directive to the measuring device for conducting the measurement. In this regard, the Appellants submit that, in the embodiments disclosed by the Jaselskis '561 patent, **the computer is only used for gathering and processing the measurement data generated by the measuring apparatus.** That is, **the Jaselskis '561 patent does not teach or suggest a computer device configured to provide a measurement parameter to a measuring device, so as to direct the measuring device to perform a measurement according to that parameter, wherein the parameter is determined by software executed by the computer device.**

Accordingly, the Appellants submit that there is **no identity** between Claims 1, 18, and 32 and the disclosure of the Jaselskis '561 patent. As such, the Appellants further submit that the

present invention, as defined by Claims 1, 18, and 32, as well as Claims 2, 9, 14, 15, 17, 19, 25, 28, 29, 31, 33, 40, and 42 which depend therefrom, **is patentable** over the Jaselskis '561 patent.

Claim Rejections – 35 U.S.C. §103

As previously discussed, Claim 1, upon which Claims 3-7 depend, Claim 18, upon which Claims 20-23 depend, and Claim 32, upon which Claims 34-38 depend, are not anticipated by the Jaselskis '561 patent. The Densham '871 patent also does not teach or suggest a computer device capable of communicating with a measuring device configured to directly measure the property of the paving-related material, wherein the computer device is configured to direct the measuring device to measure the property of the paving-related material according to a parameter determined by the computer device. As such, the Appellants submit that Claims 3-7, 20-23 and 34-38, which depend either directly or indirectly from Claims 1, 18, or 32, are patentable over the Jaselskis '561 and Densham '871 patents cited by the Office.

Conclusion

In summary, the Jaselskis '561 and Densham '871 patents, either separately or in combination, **do not** teach, suggest, or provide motivation for the embodiments of the present invention, as claimed in Claims 1, 18, and 32. Accordingly, in view of these differences, it is submitted that embodiments of the present invention, as defined by Claims 1-42, are patentable over the prior art cited by the Office. A decision from the Board of Patent Appeals and Interferences reversing the final rejection of the pending claims is therefore earnestly solicited.

8. *Claims Appendix.*

The Claims Appendix, attached hereto, includes a clean copy of the pending appealed Claims.

9. *Evidence Appendix.*

No evidence has been submitted to the Examiner or relied upon by the Appellants.

10. ***Related Proceedings Appendix.***

There are no decisions by a court or the Board in related proceedings.

Respectfully submitted,

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CLAIMS APPENDIX

1. (Previously Presented) A system adapted to determine a property of a paving-related material, said system comprising:

a measuring device for selectively and directly measuring the property of the paving-related material;

a computer device capable of executing a software program product and communicating with the measuring device, the computer device being configured to direct the measuring device to directly measure the property of the paving-related material according to a parameter determined by the software program product, and to receive data comprising the measured property of the paving-related material from the measuring device; and

a communication element operably engaged between the measuring device and the computer device so as to allow communication therebetween such that the measuring device directly measures the property of the paving-related material in response to the direction of the computer device received via the communication element, the communication element being configured to allow the computer device to be spaced apart from the measuring device, thereby allowing the computer device to be prepared, to include the parameter and to manipulate the data, in spaced apart relation with respect to the measuring device.

2. (Original) A system according to Claim 1 wherein the communication element comprises a wire element extending and connected between the computer device and the measuring device.

3. (Original) A system according to Claim 2 wherein the wire element is further configured to be removably engaged with at least one of the computer device and the measuring device.

4. (Original) A system according to Claim 1 wherein the communication element further comprises a connector having a first portion configured to be removably engaged with a second portion.

5. (Original) A system according to Claim 4 wherein the first portion is engaged with the computer device and the second portion is engaged with the measuring device.

6. (Original) A system according to Claim 4 wherein the first portion is engaged with the computer device and the second portion is engaged with a wire element extending and connected to the measuring device.

7. (Original) A system according to Claim 4 wherein the first portion is engaged with the measuring device and the second portion is engaged with a wire element extending and connected to the computer device.

9. (Original) A system according to Claim 1 further comprising a locating device operably engaged with at least one of the measuring device and the computer device, the locating device being configured to determine a location of the at least one of the measuring device and the computer device.

14. (Original) A system according to Claim 1 wherein the measuring device is further configured to directly measure at least one of a density, a density-related parameter, and a moisture content of at least one of a soil, an aggregate, and an asphalt paving mix.

15. (Original) A system according to Claim 1 wherein the measuring device is selected from the group consisting of a nuclear density gauge, a nuclear moisture gauge, a seismic pavement analyzer, a stiffness gauge, a falling weight deflectometer, a ground penetrating radar device, a radio frequency device, an electromagnetic device, a microwave device, a surface roughness measuring device, a pavement temperature sensor, a pavement temperature measuring device, and combinations thereof.

17. (Original) A system according to Claim 1 wherein the computer device is further configured to associate a time and date stamp with the data when the property is measured.

18. (Previously Presented) A method of determining a property of a paving-related material, said method comprising:

preparing a computer device to execute a software program product for directing a measuring device to directly measure the property of the paving-related material, according to a parameter determined by the software program product, and to receive data comprising the measured property of the paving-related material from the measuring device;

executing the software program product;

communicating the executed software program product from the computer device to the measuring device via a communication element operably engaged therebetween such that the measuring device directly measures the property of the paving-related material in response thereto, the communication element being configured to allow the computer device to be spaced apart from the measuring device such that the computer device can be prepared, in spaced apart relation with respect to the measuring device, to include the parameter and to manipulate the data.

19. (Original) A method according to Claim 18 communicating the data comprising the measured property of the paving-related material from the measuring device to the computer device via the communication element.

20. (Original) A method according to Claim 18 wherein the communication element comprises a wire element, and the method further comprises removably engaging the wire element with at least one of the computer device and the measuring device such that the wire elements extends and is connected between the computer device and the measuring device.

21. (Original) A method according to Claim 18 wherein the communication element comprises a connector having a first portion engaged with the computer device and a second portion engaged with the measuring device, and the method further comprises removably engaging the first portion with the second portion.

22. (Original) A method according to Claim 18 wherein the communication element comprises a connector having a first portion engaged with the computer device and a second portion engaged with a wire element extending and connected to the measuring device, and the method further comprises removably engaging the first portion with the second portion.

23. (Original) A method according to Claim 18 wherein the communication element comprises a connector having a first portion engaged with the measuring device and a second portion engaged with a wire element extending and connected to the computer device, and the method further comprises removably engaging the first portion with the second portion.

25. (Original) A method according to Claim 18 further comprising determining a location of at least one of the measuring device and the computer device with a locating device operably engaged with at least one of the measuring device and the computer device.

28. (Original) A method according to Claim 18 wherein preparing a computer device further comprises preparing a computer device to execute a software program product for directing a measuring device to directly measure at least one of a density, a density-related parameter, and a moisture content of at least one of a soil, an aggregate, and an asphalt paving mix.

29. (Original) A method according to Claim 18 wherein preparing a computer device further comprises preparing a computer device to execute a software program product for directing a measuring device comprising at least one of a nuclear density gauge, a nuclear moisture gauge, a seismic pavement analyzer, a stiffness gauge, a falling weight deflectometer, a ground penetrating radar device, a radio frequency device, an electromagnetic device, a

microwave device, a surface roughness measuring device, a pavement temperature sensor, a pavement temperature measuring device, to directly measure the property of the paving-related material.

31. (Original) A method according to Claim 18 further comprising associating a time and date stamp with the data when the property is measured.

32. (Previously Presented) A system adapted to cooperate with a measuring device to selectively and directly measure a property of a paving-related material, said system comprising:
a computer device capable of executing a software program product and communicating with the measuring device, the computer device being configured to direct the measuring device to directly measure the property of the paving-related material according to a parameter determined by the software program product, and to receive data comprising the measured property of the paving-related material from the measuring device; and
a communication element operably engaged between the measuring device and the computer device so as to allow communication therebetween such that the measuring device directly measures the property of the paving-related material in response to the direction of the computer device via the communication element, the communication element being configured to allow the computer device to be spaced apart from the measuring device, thereby allowing the computer device to be prepared, to include the parameter and to manipulate the data, in spaced apart relation with respect to the measuring device.

33. (Original) A system according to Claim 32 wherein the communication element comprises a wire element extending and connected between the computer device and the measuring device.

34. (Original) A system according to Claim 33 wherein the wire element is further configured to be removably engaged with at least one of the computer device and the measuring device.

35. (Original) A system according to Claim 32 wherein the communication element further comprises a connector having a first portion configured to be removably engaged with a second portion.

36. (Original) A system according to Claim 35 wherein the first portion is engaged with the computer device and the second portion is engaged with the measuring device.

37. (Original) A system according to Claim 35 wherein the first portion is engaged with the computer device and the second portion is engaged with a wire element extending and connected to the measuring device.

38. (Original) A system according to Claim 35 wherein the first portion is engaged with the measuring device and the second portion is engaged with a wire element extending and connected to the computer device.

40. (Original) A system according to Claim 32 further comprising a locating device operably engaged with at least one of the measuring device and the computer device, the locating device being configured to determine a location of the at least one of the measuring device and the computer device.

42. (Original) A system according to Claim 32 wherein the computer device is further configured to associate a time and date stamp with the data when the property is measured.

EVIDENCE APPENDIX

No evidence has been submitted to the Examiner or relied upon by the Appellant.

RELATED PROCEEDINGS APPENDIX

There are no decisions by a court or the Board in related proceedings.